LArSoft minutes, 15-Feb-2012. -- Eric Church

LArSoft minutes appear at https://cdcvs.fnal.gov/redmine/projects/activity/larsoftsvn. (The location presumably at which you found these!) For further details of matters reported here drill down into the wiki, etc, at that redmine site. Everyone is welcome to attend the bi-weekly meetings. Next meeting will be 14-Mar-2012 (there's a uBooNE review on our putative next date of 29-Feb). It will be back in the Racetrack, 7X0.

Watch for a potential LArSoft 1.5 day tutorial upcoming at FNAL. Leading candidate dates right now are 3/8-9. (Still) Nothing's been formalized yet.

There are pdfs from Andrzej, Herb, Ben on the Documents link on redmine today.

Herb told us about his new Spacepoint service, which now is checked in. Herb has some nice plots in his presentation showing spacepoints in his new 3D view in the event display. One sees in the y-z view that there's a big scatter (swirly pantern, in fact) corresponding to when the track goes flat wrt the wire planes if he plots all spacepoints from all possible combinatorics allowed within the deltat that he allows to produce consistent triplets. These are uBooNE, 3 plane results. If he filters the Spacepoints, meaning the combinatorics is constrained by requiring that each 2D point only show up once, the situation is better. Not as good as requiring only truth hits! This motivates Herb's latest check-in, which is to attach a 3x3 xyz error matrix to each Spacepoint. The diagonal elements are appropriately large for spacepoints made from these flat regions of the track. This will be immensely useful to the Kalman track fitter.

Andrzej has stuck the ArgoNeuT electron lifetime, indexed by run number, into a database. It's a FNAL CD supported postgres db. Andrzej has created the Table and rows outside of LArSoft, but uses postgres library functions to extract data. This is a long awaited development. In the future all such detector data will go into this database. The database itself is temporary and will move to its own ArgoNeuT specific database soon. Each LArSoft experiment will get its own database over time, and owners will be allowed to write to it; the rank and file will be allowed to read from it. One can imagine that the queries will quickly become very experiment specific. Challenges are also going to present themselves for remote installs, vis-a-vis db replication, etc. For now Andrzej has coded up a Utilities::Service that does the interfacing, and the user should not need to know details .... at least until he/she wants to extract something more than the lifetime...

Ben described a new idea for parsing Spacepoints for track finding. He suggests finding seeds for tracks by projecting Spacepoints down into the wire planes and looking for adjacent similarly directed 2D Hits in the respective planes, and then re-forming Spacepoints in 3D from those Hits. Those Spacepoints are then subtracted from the full set, and the process is repeated. This will produce a nice set of vectors of Spacepoints to feed to any track fitter. Ben's early rules seem to produce sensible results for muons. Stay tuned for future results on nastier events, like neutrino DIS evts.

A conversation ensued about how to best engineer Spacepoints. They are currently used to hold information from the 2D hits that comprise them, and their associated errors. One wonders however how to attach, say, the Kalman State and covariance matrix at each point down the line. Spacepoints are not currently written as part of the event. They are owned by Prongs. So

to save them on the Event now we create Prongs and attach them to those. Stay tuned to see whether we decide this is how to proceed or if another idea arises.

See ya next time. -- Eric

Details for the next meeting:

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>>> fnal location: Racetrack, 7th floor x-over
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